



WAPELLO COUNTY EMSAC

BEYOND THE 8-MINUTE RESPONSE

Response-Time Standards, Evidence, and Local Accountability
under the July 2026 Iowa EMS System Standards

Prepared for the Wapello County Emergency Medical Services Advisory Council (EMSAC)

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Central finding

The July 2026 Iowa EMS System Standards do not impose a single statewide numerical ambulance response-time threshold. They direct each EMS system to define system-appropriate response times for initial responders, BLS, ALS, and transport-capable ambulances; establish local response-reliability standards; and evaluate performance against those local standards. The familiar eight-minute benchmark remains historically important, but it is not a federal ambulance mandate and should not be used as the sole measure of EMS quality.

*This paper separates law, regulation, voluntary standards, accreditation, contract requirements, and research evidence.
It is a planning reference, not legal advice or a substitute for medical direction.*

Executive Summary

Question	Answer
Iowa's 2026 approach	No statewide numeric response-time threshold is stated. Local systems are expected to define appropriate standards for initial responders, BLS, ALS, and transport-capable ambulances and to measure reliability against those standards.
What Iowa rule requires	Current Iowa Administrative Code requires each service program to maintain a written CQI program, review at least 911 response and scene times, establish measurable outcomes, and close the loop on identified concerns.
Scientific origin of the 8-minute figure	A 1979 JAMA cardiac-arrest study reported markedly better survival when CPR began within four minutes and definitive care occurred within eight minutes. That finding concerned out-of-hospital cardiac arrest, not every EMS request.
How it became an operating target	Fire-service deployment standards, especially NFPA 1710 beginning in 2001, operationalized four-minute first-responder/AED and eight-minute ALS travel objectives, generally at the 90th-percentile compliance level.
What has changed nationally	NFPA 1710 was consolidated into NFPA 1750. The legacy four-/eight-minute deployment concept remains in the fire-service standard, but national EMS policy and quality programs now emphasize patient-centered outcomes, clinical processes, safety, reliability, equity, and sustainability.
What counties should do	Retain response time as a core measure, but define every interval and resource category; stratify by priority, geography, and time; report median and 90th percentile; add reliability, clinical, safety, workforce, financial, equity, and patient-experience measures.

What local officials should take from this paper

- Iowa has not abolished response-time accountability. The 2026 standards leave the numerical targets to local systems, which must define the resources, geography, intervals, and reliability expectations that fit their communities.
- Eight minutes is not a federal ambulance requirement. It is a voluntary deployment benchmark unless a state or local government, contract, accreditation program, or agency policy makes it binding.
- The benchmark's scientific roots are in a 1979 out-of-hospital cardiac-arrest study. Its later use expanded well beyond the patient population and outcome examined in that research.
- Time still matters—sometimes decisively. The useful question is which interval matters for a particular patient, what intervention must occur, and which responder can deliver it soonest.
- Local flexibility does not mean less accountability. Counties need a balanced, public, and auditable framework that combines timeliness with clinical quality, reliability, access, safety, workforce, and cost.

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1. Purpose and Scope

For decades, elected officials, ambulance boards, fire departments, and the public have used a short response time as a readily understandable proxy for EMS quality. The most familiar number is eight minutes. It is often repeated as though it were a national ambulance law, a universally validated clinical threshold, or a requirement that applies equally to every call and every community. None of those descriptions is fully correct.

The July 2026 Iowa Emergency Medical Services System Standards provide an important opportunity to correct the record. The document does not prescribe one numerical statewide response-time target. Instead, it assigns local EMS systems a more demanding responsibility: define response-time and response-reliability expectations that fit the system, then evaluate whether initial responders, BLS resources, ALS resources, and transport-capable ambulances meet those expectations. That approach preserves accountability while recognizing differences in geography, call demand, workforce, station configuration, medical capability, and public finance.

This paper answers five policy questions. First, what does the 2026 Iowa document actually say? Second, where did the four-/eight-minute concept originate? Third, what does later research show about the relationship between response intervals and patient outcomes? Fourth, has the national standard changed? Fifth, how should an Iowa county or multiagency EMS system write and monitor a defensible local standard?

Scope boundary

This paper addresses system standards and performance measurement. It does not establish a clinical protocol, recommend emergency driving for any category of call, or determine the legal obligations of a particular county, city, hospital, fire department, ambulance service, or contractor.

1.1 Five different kinds of 'standards'

Much of the confusion begins with the word standard. In EMS discussions it may refer to a law, a state best-practice document, an accreditation criterion, a voluntary consensus standard, or a local contract. Those instruments do not carry the same legal weight.

Instrument	Meaning for response-time policy
Statute or administrative rule	Legally enforceable requirement adopted by a government with authority. Iowa Administrative Code chapter 641-132 is an example.
State system standard or best practice	A recommended system-development expectation. The July 2026 Iowa EMS System Standards state that they are recommendations or best practices and that they exceed minimum administrative-code requirements.
Voluntary consensus standard	A professional standard developed through a consensus process, such as an NFPA standard. It may become binding when incorporated by law, contract, ordinance, policy, accreditation, or court interpretation.
Accreditation standard	A requirement accepted by an organization seeking or maintaining accreditation. Its applicability depends on participation and the accrediting body's scope.
Local policy, ordinance, or contract	A locally adopted obligation that can define exact clocks, compliance levels, reporting methods, remedies, exceptions, and funding consequences.

A county should therefore avoid statements such as 'NFPA requires every ambulance to arrive in eight minutes' unless the specific NFPA provision applies to the provider and has been made binding. The more accurate formulation is that NFPA historically supplied influential fire-service deployment objectives, while state and local instruments determine legal and contractual obligations.

1.2 The proper question

The modern policy question is not whether response time matters. Time plainly matters in emergencies. The proper question is: **which interval, for which patient condition, which intervention, which resource, which geographic area, and what reliability level?** A single undifferentiated number cannot answer all of those questions.

For example, a nearby trained responder with an AED may be more important to a cardiac-arrest patient than the time at which an ALS transport unit parks. For stroke, the quality of recognition, hospital prenotification, destination choice, and total time to definitive treatment may matter more than a categorical eight-minute arrival. For a low-acuity request, an

emergency-driving response may add risk without meaningful clinical benefit. A strong system measures the complete chain rather than rewarding one clock in isolation.

1.3 How to use this paper

This paper is designed to support a sequence of local decisions rather than supply a substitute numerical target. It can be used as a briefing for elected officials, a framework for an EMS advisory council, a reference for contract drafting, or a starting point for a countywide performance dashboard.

The recommended order is to define the local system and data first, establish medical priorities second, analyze current performance and cost third, and adopt response-time and reliability expectations only after those steps are complete.

- Start with the Iowa standards and Iowa Administrative Code.
- Use the historical and research review to explain why eight minutes is a reference point, not a universal command.
- Use the model dashboard and policy language to define local accountability.
- State assumptions and data limitations plainly.

2. What the July 2026 Iowa EMS System Standards Actually Require

The Iowa Department of Health and Human Services published the Iowa Emergency Medical Services System Standards in July 2026. The document describes an EMS system as a coordinated network that includes clinicians, EMS agencies, public safety answering points, law enforcement, fire departments, hospitals, medical directors, education programs, emergency management, public health, elected officials, and other partners. It expressly characterizes the standards as recommendations or best practices for a strong, efficient, resilient EMS system and states that they surpass minimum Iowa Administrative Code requirements (Iowa HHS, 2026).

The response-time direction is concentrated in the Evaluation section, but it is supported by standards addressing governance, dispatch, medical direction, data, clinical care, finance, and public education. Reading Standard 14.08 alone would miss the integrated system model.

2.1 The core response-time standards

Standard	Iowa direction	Policy significance
3.03	Annually assess capabilities, resources, staffing, and responses; use QI processes to address challenges.	Creates a recurring governance cycle rather than a one-time target.
6.02	Adopt a standard CQI program with specified audits, designees, education requirements, measurable outcomes, deficiency resolution, and closed-loop feedback.	Makes response measurement part of a broader clinical and operational improvement system.
10.02	Design dispatch protocols for efficient and appropriate delivery of care across geopolitical boundaries.	Supports closest/most appropriate resource concepts rather than rigid jurisdictional silos.
10.04	Implement CAD to support decision-making, response, and data collection.	Provides the authoritative time stamps needed for auditable intervals.
10.08-10.09	Use medically directed, standardized, CAD-integrated EMD with prioritization, pre-arrival instructions, and CQI.	Connects urgency classification and bystander care to response policy.
14.01	Define QA/QI metrics monitored across the system and periodically reported to responders and stakeholders.	Requires a transparent metric set, not a private or provider-only score.
14.07	Evaluate responses for appropriate BLS/ALS staffing and top-of-practice deployment.	Measures appropriateness of resource use, not merely speed.
14.08	Define system-appropriate response times for initial responders, BLS, ALS, and transport-capable ambulance services; evaluate actual times against the defined standard.	Rejects a one-size-fits-all statewide number while requiring local numeric or otherwise measurable expectations.
14.09	Define system-appropriate response reliability standards; identify agencies or areas that fall below the local standard.	Requires attention to consistency, geographic variation, and tail performance.
14.10	Evaluate dispatch times for delay and dispatch-information accuracy.	Prevents the response clock from concealing call-processing problems.
14.11-14.12	Evaluate total cost, including readiness and response cost, and seek hospital outcome data for QI.	Links service expectations to resources and patient outcomes.
14.15	Conduct a comprehensive annual assessment and report to key stakeholders.	Creates a formal accountability product.

Source note: Iowa Department of Health and Human Services, Iowa Emergency Medical Services System Standards, July 2026.

The precise conclusion

Iowa did not remove response-time accountability. Iowa moved the numerical decision to the local system and coupled it with a separate reliability standard, dispatch evaluation, annual assessment, outcome data, and cost analysis.

2.2 Four resource categories must be distinguished

Standard 14.08 identifies four categories: initial responders, BLS services, ALS services, and transport-capable ambulance services. Those categories may arrive in different sequences and may be supplied by different agencies. A local report that presents only 'ambulance response time' can therefore be materially incomplete.

- Initial responder: the first qualified resource capable of beginning immediate assessment or intervention. Depending on local design, this may be a fire unit, law-enforcement officer, quick-response team, volunteer responder, or EMS unit.

- BLS service: a resource staffed and equipped for basic life support. Its importance includes CPR, AED use, bleeding control, oxygenation/ventilation support, basic assessment, and other protocol-authorized care.
- ALS service: a resource staffed and equipped to provide advanced life support within the local and state scope of practice.
- Transport-capable ambulance: a unit capable of transporting the patient. It may be BLS or ALS, and it may not be the first medical resource at the scene.

The distinction is especially important in tiered and rural systems. A local standard may reasonably demand one interval for arrival of a nearby initial responder and another for arrival of a staffed transport ambulance. Combining them can either overstate performance or unfairly characterize a clinically useful tiered response as a failure.

2.3 Response reliability is not the same as average response time

Standard 14.09 adds a concept that is often more important to elected officials than a systemwide average: reliability. A system can report an acceptable average while repeatedly leaving a distant municipality, certain time periods, or simultaneous calls without timely coverage. Reliability asks whether the promised capability is consistently available throughout the service area.

A local reliability standard should address at least the percentage of calls meeting the defined objective, the percentile distribution of response intervals, the frequency of mutual aid and uncovered demand, unit availability when the call is received, and geographic areas that fall below the standard. Averages alone should not be used because a small number of very fast calls can mask a consequential upper tail.

2.4 Iowa standards and administrative rule are not the same thing

The distinction between the system standards and administrative rule is important. The July 2026 standards are recommendations and best practices. Current Iowa Administrative Code 641-132.3(7), by contrast, requires an authorized service program to develop, maintain, and follow a written CQI program; conduct medical audits; use CQI to identify deficiencies; review at minimum 911 response and scene times; establish measurable outcomes reflecting service goals and standards; and ensure loop closure or resolution.

The rule does not supply a universal numerical response threshold. It requires measurement and a functioning quality system. The 2026 system standards build on that floor by expecting the broader local system to define response times and reliability for multiple responder categories, report metrics, assess cost, and obtain outcome feedback.

2.5 What the Iowa document does not say

- It does not state that every ambulance must arrive within eight minutes.
- It does not state that response time is unimportant.
- It does not prescribe one urban, suburban, or rural target.
- It does not define the exact start and stop points for a local response clock.
- It does not establish whether compliance should be measured at the median, 80th percentile, 90th percentile, or another fractile.
- It does not provide automatic exclusions for weather, simultaneous calls, staging, railroad crossings, inaccurate addresses, or mutual aid.
- It does not authorize a local system to ignore areas or agencies with unreliable performance.

Those unresolved details are not defects; they are assignments to local governance. A county or EMS stakeholder group must fill them in through data analysis, medical oversight, public policy, and transparent resource decisions.

3. What 'Response Time' Means

Response-time debates often compare numbers that use different clocks. One agency may measure from dispatch to arrival; another from 911 call receipt to arrival; a third from unit notification to patient contact. The apparent performance difference may be a data-definition difference rather than an operational difference.

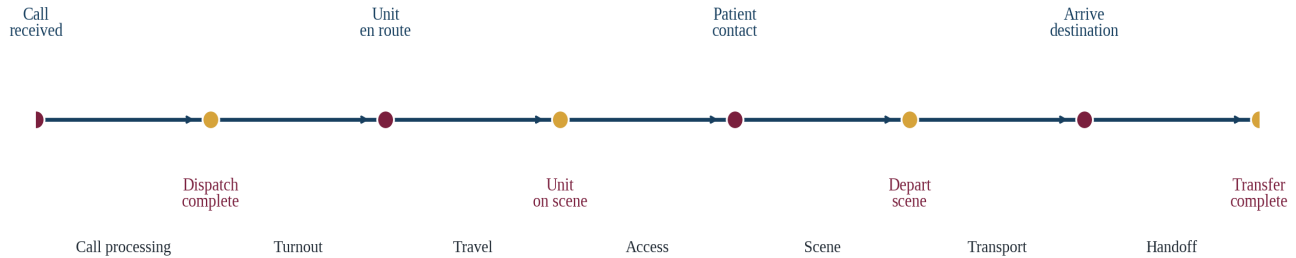


Figure 1. The EMS time continuum. A defensible policy defines each start and stop event rather than relying on the undefined phrase 'response time.'

3.1 Recommended interval definitions

Interval	Suggested definition	What it reveals
Call-answer interval	First 911 presentation to answer by the PSAP.	Access and PSAP capacity.
Call-processing interval	Call answer or receipt to completed notification/dispatch of the appropriate resource.	Questioning, location validation, EMD coding, and dispatch workflow.
Turnout interval	Resource notification to en-route status.	Crew readiness, station design, staffing model, alerting, and dispatch acknowledgment.
Travel interval	En-route status to arrival at the incident location.	Geography, road network, traffic, weather, posting, unit selection, and emergency driving.
Access interval	Arrival at incident location to patient contact.	High-rises, industrial sites, locked buildings, remote property, staging, scene safety, and address quality.
Patient-response interval	911 call receipt to patient contact by the specified level of responder.	The most patient-centered arrival measure when data are reliable.
Scene interval	Patient contact or unit arrival to departure from scene.	Assessment, stabilization, extrication, decision-making, documentation, and treatment.
Transport interval	Scene departure to arrival at destination.	Distance, destination protocol, traffic, and transport mode.
Handoff interval	Destination arrival to transfer of care or unit availability.	Hospital throughput and system capacity.

3.2 The total response interval versus component intervals

A total interval can be useful for public reporting, but it should never replace component analysis. If total response rises, system leaders need to know whether the cause is PSAP processing, volunteer assembly, station turnout, travel distance, unit unavailability, staging, or access to the patient. Each cause has a different remedy and a different responsible party.

Contract language should identify the authoritative timestamp for each interval, the system of record, the treatment of missing or corrected timestamps, and the audit method. CAD should generally be the operational source, while ePCR and hospital data provide complementary clinical and patient-contact timestamps.

3.3 Use fractiles, not averages alone

Averages summarize the center but do not show reliability. EMS deployment standards have often used a percentile or fractile requirement, commonly the 90th percentile. A 90th-percentile objective means that 90 percent of included responses are at or below the stated time. It does not mean that the average equals the target.

For public accountability, a practical minimum display is the median and 90th percentile, together with the percentage meeting the local standard. The median describes the typical call. The 90th percentile describes the slower tail. Systems with enough call volume should also report the 95th percentile and the maximum after data-quality review, but maximums can be dominated by rare coding errors or extraordinary incidents.

Example

If a system's median travel interval is 7 minutes and its 90th percentile is 18 minutes, saying that the 'average response is 8 minutes' would conceal the reliability problem experienced by a substantial share of callers.

3.4 Stratification is required for fair interpretation

Performance should be stratified by the factors that materially affect service design. At minimum, an Iowa system should consider dispatch priority, resource level, first responder versus transport ambulance, municipality or response zone, urban/rural character, hour of day, day of week, staffed versus on-call status, simultaneous-call status, mutual-aid involvement, and weather or roadway disruption.

Stratification is not a license to create so many categories that accountability disappears. It is a method for revealing where performance differs and determining whether those differences are justified, remediable, or inequitable.

3.5 Exclusions require discipline

Local standards often exclude calls involving inaccurate addresses, law-enforcement staging, unsafe scenes, disaster conditions, severe weather, railroad blockage, extraordinary extrication, or mutual aid. Some exclusions are legitimate, but broad or discretionary exclusions can produce misleading compliance rates.

- Define each exclusion in writing before the reporting period.
- Retain excluded incidents in the database and report their number and reason.
- Do not exclude routine simultaneous-call demand merely because the system lacked an available unit; that is a reliability finding.
- Do not exclude mutual-aid responses when mutual aid is a normal component of the system design.
- Require review and approval of manual exclusions by an independent or multidisciplinary CQI body.
- Publish both raw and adjusted performance when exclusions materially change results.

4. Origin and Evolution of the Eight-Minute Benchmark

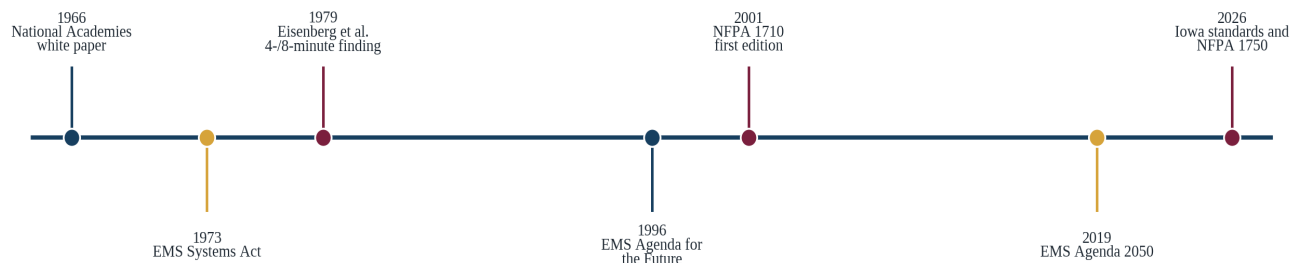


Figure 2. Milestones that shaped modern EMS and the response-time debate.

4.1 The 1966 national EMS white paper

Modern American EMS is commonly traced to the National Academy of Sciences-National Research Council report *Accidental Death and Disability: The Neglected Disease of Modern Society* (1966). The report documented preventable death and disability, fragmented ambulance services, inadequate training, poor communications, and the need for organized systems. It helped drive federal attention to highway safety, ambulance design, training, communications, and regionalization.

The 1966 report did not create the eight-minute rule. Its significance lies in establishing the broader proposition that organized prehospital care and rapid access to appropriate treatment could improve outcomes.

4.2 The 1979 cardiac-arrest study: the scientific antecedent

The clearest original scientific antecedent to the four-/eight-minute concept is the 1979 JAMA article by Mickey S. Eisenberg, Leonard Bergner, and Alfred Hallstrom, *Cardiac Resuscitation in the Community: Importance of Rapid Provision and Implications for Program Planning*. The investigators examined out-of-hospital cardiac arrest and found a strong joint relationship between survival and two intervals: time to initiation of CPR and time to definitive care.

The article reported that when CPR began within four minutes and definitive care was provided within eight minutes, 43 percent of patients survived; when either interval was exceeded, survival fell substantially (Eisenberg et al., 1979). That result became highly influential in EMS planning.

Critical limitation

The study did not establish that every ambulance response for every complaint must occur within eight minutes. It concerned cardiac arrest, paired early CPR with definitive care, reflected a particular system and era, and did not define a universal legal compliance standard.

The phrase definitive care in the study should not be casually equated with the arrival of any ambulance at any incident. In the cardiac-arrest chain, the clinically meaningful events include recognition, activation, bystander CPR, defibrillation, advanced resuscitation, and post-arrest care. A deployment metric is useful only to the extent that it advances those interventions.

4.3 How a clinical observation became a deployment rule

The four-/eight-minute concept was attractive to administrators because it was simple, measurable, and connected to an intuitively compelling emergency: sudden cardiac arrest. As fire departments expanded their EMS role, a tiered model became common: a nearby first responder or BLS unit could begin CPR and defibrillation, followed by an ALS unit. The clinical observation therefore migrated into station-placement, staffing, and deployment objectives.

Over time, the eight-minute number was applied more broadly in franchise agreements, performance contracts, ordinances, accreditation discussions, and public reporting. In some systems the clock started at dispatch; in others at call receipt. Some measured ALS arrival, others any ambulance. Some required 90-percent compliance, others used averages. The apparent uniformity of 'eight minutes' concealed significant variation.

4.4 NFPA 1710

NFPA 1710, first issued in 2001, was a voluntary consensus standard for the organization and deployment of career fire departments. Its EMS deployment provisions became the best-known operational codification of the legacy concept.

Later editions commonly identified a 240-second travel objective for a first-responder/AED or higher-level unit and a 480-second travel objective for ALS, with specified turnout and percentile criteria.

Those were fire-department deployment objectives, not a federal ambulance statute. They addressed defined components such as turnout and travel. When call processing and turnout are added, an eight-minute ALS travel objective does not necessarily equal an eight-minute interval from the public's 911 call to patient contact.

4.5 NFPA 1750 in 2026

NFPA's emergency-response standards consolidation created NFPA 1750, 2026 edition, combining NFPA 1201, NFPA 1710, NFPA 1720, and NFPA 1730. The old number 1710 is therefore no longer the current standalone document designation. The underlying fire-service deployment concepts, including differentiated demand-zone approaches and the legacy four-/eight-minute EMS travel objectives for career operations, continue within the consolidated standard.

This is an editorial and structural change, not evidence that the eight-minute concept disappeared from fire-service standards. It is equally not evidence that all EMS systems are required to adopt it. The authority having jurisdiction must determine applicability, adoption, service design, and the relationship to local law and contracts.

4.6 What the eight-minute benchmark is - and is not

Classification	Explanation
Historical benchmark	A historically influential deployment benchmark linked to early cardiac-arrest research and later fire-service standards.
Useful comparison	A useful reference point for comparing system design when the clock, resource, patient category, geography, and percentile are explicitly defined.
Possible local requirement	A binding local obligation when incorporated into an ordinance, contract, policy, accreditation requirement, or other enforceable instrument.
Not federal law	A federal law requiring every U.S. ambulance to arrive within eight minutes.
Not a universal clinical threshold	A scientifically validated universal threshold for every EMS complaint.
Not a complete quality measure	A complete measure of clinical quality, system reliability, equity, safety, or financial sustainability.
Not self-defining	Necessarily the interval from 911 call receipt to patient contact; many standards refer only to turnout or travel components.

5. What the Scientific Evidence Shows

The evidence does not support either extreme. It does not support the claim that response time never matters, and it does not support treating eight minutes as a universal cliff beyond which all patients experience worse outcomes. The relationship between time and outcome varies by condition, intervention, baseline severity, bystander action, dispatch accuracy, transport destination, and system design.

5.1 Cardiac arrest: intervention time is crucial

Out-of-hospital cardiac arrest remains the strongest clinical rationale for rapid system action. Yet the operative concept is not merely ambulance arrival. The chain begins with early recognition and 911 activation, immediate high-quality bystander CPR, rapid defibrillation when indicated, effective professional resuscitation, and post-arrest care. Dispatch-assisted CPR, public-access AED programs, first-response defibrillation, and community responder alerts can alter the clinically meaningful interval before an ambulance arrives.

A county that pursues an eight-minute ambulance target while neglecting call recognition, telecommunicator CPR, AED access, first-responder capability, CPR quality, and outcome measurement may meet a deployment metric without optimizing survival. Conversely, a tiered rural system may deliver an AED-capable responder early and a transport ambulance later while still creating a clinically coherent cardiac-arrest response.

5.2 All-cause survival and the eight-minute cutoff

Pons and colleagues evaluated whether an eight-minute paramedic response threshold predicted survival in a mixed EMS population. After adjustment for confounding factors, an eight-minute response was not independently associated with improved survival to hospital discharge (Pons et al., 2005). This study is frequently cited against universal use of the threshold, but it should not be interpreted to mean that delay is harmless in every patient subgroup.

Blanchard and colleagues studied high-priority adult EMS events in an urban setting. Mortality was 7.1 percent when response was eight minutes or more and 6.4 percent when it was seven minutes fifty-nine seconds or less, a small absolute difference whose confidence interval included no difference (Blanchard et al., 2012). The study illustrates why a binary cutoff can be less informative than continuous intervals, clinical subgroup analysis, and risk adjustment.

5.3 Trauma

A 2002 trauma analysis by Pons and Markovchick concluded that exceeding the ambulance industry's eight-minute criterion did not affect survival after traumatic injury in the studied system. Trauma outcomes depend on injury mechanism and severity, hemorrhage control, airway management, extrication, scene time, destination choice, transport time, and trauma-center capability. A rapid arrival with prolonged on-scene time or inappropriate destination may not improve the total pathway.

5.4 Stroke, STEMI, sepsis, airway emergencies, and pediatrics

For other time-sensitive conditions, the relevant performance chain often extends beyond arrival. In suspected stroke, systems should measure recognition, last-known-well documentation, stroke scale use, prenotification, destination compliance, and time to definitive hospital treatment. In suspected ST-elevation myocardial infarction, 12-lead ECG acquisition, interpretation, transmission, destination, and catheterization-laboratory activation are central. In sepsis, airway compromise, anaphylaxis, overdose, and selected pediatric emergencies, prompt identification and appropriate treatment matter, but a universal eight-minute arrival threshold remains an incomplete measure.

The July 2026 Iowa standards reflect this orientation by requiring outcome-focused, evidence-based protocols, rapid recognition and advanced notification for time-critical conditions, appropriate destination decisions, and hospital outcome-data sharing.

5.5 Low-acuity calls and emergency-driving risk

Not every 911 EMS request benefits from the same speed or response mode. Emergency medical dispatch exists partly to identify urgency and match the response. Lights-and-siren operation imposes risk on responders, patients, motorists, pedestrians, and the public. National safety initiatives increasingly recommend limiting emergency driving to circumstances in which the anticipated clinical benefit justifies the risk.

A performance contract that rewards only shorter response times can create a perverse incentive to use lights and siren broadly, post units inefficiently, over-triage calls, or conceal delays and exclusions. Timeliness standards should

therefore be paired with medically directed dispatch priorities, lights-and-siren utilization measures, collision and near-miss reporting, and clinical outcome measures.

5.6 Evidence summary

Source	Population/focus	Main finding	Policy implication
Eisenberg et al., 1979	Out-of-hospital cardiac arrest	Early CPR and definitive care were jointly associated with survival; the widely cited four-/eight-minute finding originated here.	Supports rapid cardiac-arrest intervention, not a universal all-call legal standard.
Pons & Markovchick, 2002	Trauma	Exceeding eight minutes did not affect survival in the studied trauma cohort.	Do not use a universal cutoff as the sole trauma-quality measure.
Pons et al., 2005	Mixed paramedic responses	Eight-minute paramedic response was not independently associated with survival after adjustment.	Measure clinical subgroups and outcomes, not only threshold compliance.
Blanchard et al., 2012	High-priority urban adult EMS	Mortality difference around the eight-minute cutoff was small and uncertain.	Avoid treating 7:59 and 8:00 as a biologic cliff.
Mell et al., 2017	National rural/suburban/urban data	Response intervals were substantially longer in rural areas; upper-tail rural times were especially long.	Geographic stratification and local resource analysis are essential.
NEMSAC / NEMSQA	System quality	National policy recognizes response time as important but insufficient to define quality.	Use a balanced performance portfolio.

5.7 What can safely be concluded

- Minutes matter most when they change the time to a beneficial intervention.
- A single all-call threshold mixes patients with very different time sensitivity.
- A hard eight-minute cutoff creates artificial classification: 7:59 is treated as success and 8:00 as failure even when the clinical difference is negligible.
- Response-time data remain essential for deployment, access, reliability, equity, and public expectations.
- Clinical quality requires measures beyond arrival, including treatment processes and patient outcomes.
- Local targets should be evidence-informed, data-driven, risk-stratified, and periodically reevaluated.

6. Has the National Benchmark Changed?

Yes, but the change must be described precisely. The national landscape has changed from a culture that often treated eight minutes as the dominant shorthand for EMS quality toward a patient-centered, multi-measure performance model. At the same time, the legacy four-/eight-minute deployment objectives remain visible in current fire-service standards. Both facts are true.

6.1 What changed

- The 1996 EMS Agenda for the Future framed EMS as an integrated component of the health system rather than only a transport function.
- National EMS performance-measure projects developed indicators across clinical care, safety, operations, finance, and system effectiveness.
- NEMSAC observed that response time and cardiac-arrest survival, while important, do not fully define EMS quality.
- EMS Agenda 2050 established a people-centered vision guided by safety and effectiveness, integration, reliability and preparedness, social equity, sustainability and efficiency, and adaptability and innovation.
- NEMSQA now encourages agencies to select validated measures meaningful to their patient populations and to use them for improvement.
- Iowa's 2026 standards explicitly adopt the EMS Agenda 2050 principles and require local, system-appropriate response and reliability standards rather than one statewide number.

6.2 What did not change

- The public still reasonably expects timely access to emergency care.
- Cardiac arrest and other time-critical emergencies still require rapid recognition and intervention.
- Deployment standards still use time and percentile objectives.
- NFPA's 2026 consolidation did not erase the legacy four-/eight-minute fire-service model.
- Local contracts and ordinances may continue to use an eight-minute or other numerical target.
- Response-time data remain indispensable for evaluating access, station placement, staffing, mutual aid, and geographic equity.

6.3 The best description of the national position

Recommended language

There is no single federal ambulance response-time mandate. The traditional eight-minute benchmark grew from cardiac-arrest research and was operationalized in fire-service deployment standards. Modern EMS policy retains timeliness as an important measure but rejects use of a universal eight-minute cutoff as the sole or sufficient definition of system quality.

6.4 NFPA 1710 versus NFPA 1750

Issue	Earlier framework	2026 framework
Document number	NFPA 1710	NFPA 1750, 2026 edition
Scope	Career fire-department organization and deployment.	Unified standard consolidating career, volunteer/combination, administration, and fire-prevention deployment documents.
Status	Historical standalone standard; highly influential.	Current consolidated standard.
EMS timing concept	Four-minute first responder/AED and eight-minute ALS travel objectives in career context.	Legacy career deployment concepts carried into the consolidated structure.
Legal effect	Voluntary unless adopted or incorporated.	Voluntary unless adopted or incorporated.

Because editions and section numbering change, a local policy should cite the exact adopted edition and section. Referring generically to 'NFPA 1710' after consolidation can create ambiguity. County counsel, the fire authority, and the service medical director should verify the controlling edition and the intended application.

7. Rural Iowa: Geography, Readiness, and Equity

Rural EMS is not simply urban EMS with fewer calls. It is a different operating environment: lower population density, longer travel distances, dispersed demand, limited hospital access, smaller labor pools, volunteer or on-call staffing, interfacility transport burden, weather exposure, and greater dependence on mutual aid. A statewide eight-minute ambulance requirement would either be unattainable in many areas or would require a major and explicit increase in public funding.

7.1 National rural response-time evidence

Mell and colleagues used national data to compare EMS response intervals across rural, suburban, and urban settings. The overall median interval from 911 call to first EMS arrival was approximately seven minutes, but rural intervals were much longer; the rural 90th percentile was reported near 26 minutes, compared with approximately 12 minutes in urban areas (Mell et al., 2017). The key policy point is the distribution: a rural average can conceal a long tail caused by distance and limited unit availability.

7.2 Readiness cost

EMS is a readiness service before it is a transport business. A staffed unit, station, communications system, medical direction structure, training program, and replacement reserve must exist before the next call occurs. Billing revenue generally follows transports, while readiness cost exists continuously and many responses do not produce billable transport.

Iowa Standard 14.11 explicitly directs systems to evaluate total cost, including readiness and response cost. That direction is essential when elected officials consider aggressive response-time targets. The marginal cost of improving the 90th percentile in a low-volume distant zone may be substantially higher than improving the median in a population center. The decision is a public-policy choice about acceptable access and equity, not merely an operational preference.

7.3 Volunteer and on-call turnout

In an on-call model, the turnout interval may include travel by personnel to a station before the ambulance can depart. Reporting only ambulance travel time would hide that component. Conversely, comparing the total interval from call receipt in an on-call rural system with travel-only performance from a staffed urban station would be misleading.

Local standards can remain rigorous while acknowledging the staffing model. They can separately measure dispatch, personnel acknowledgment, crew assembly, unit turnout, first-responder arrival, ambulance arrival, and patient contact. This allows leaders to see whether a problem is caused by distance, staffing availability, alerting, station access, or another factor.

7.4 Simultaneous calls and transport-unit reliability

A county may appear adequately covered when all units are available but fail during overlapping demand. A complete system standard should measure the percentage of time at least one transport-capable unit is available, the frequency and duration of zero-unit or level-zero conditions, stacked calls, mutual-aid requests and denials, out-of-area transports, interfacility-transfer impact, and the response performance of second and subsequent calls.

This is the practical meaning of reliability. The public needs an EMS system that can respond not only to the first call of the day but also to the next call while the primary unit is committed.

7.5 Equity

Local flexibility should not become a mechanism for normalizing inferior service to certain communities without public examination. Iowa Standard 14.09 directs systems to identify agencies or areas below the local reliability standard. EMS Agenda 2050 identifies social equity as a guiding principle. **A county should therefore publish response distributions by zone or municipality and explain material disparities.**

Equity does not necessarily require identical minutes in every location; geography may make identical performance impossible. It requires transparent analysis, reasonable access objectives, meaningful mitigation, and explicit public decisions about the resources needed to reduce disparities.

7.6 Rural mitigation strategies

Strategy	Potential value	Design cautions
Tiered first response	Place AED/BLS-capable responders closer to dispersed populations while protecting transport capacity.	Credentialing, medical direction, equipment, activation reliability, and data integration.
Dynamic deployment/posting	Move staffed units based on demand and coverage.	Fatigue, station support, predictability, and loss of home-zone coverage.
Automatic/closest-unit aid	Dispatch the most appropriate available resource across boundaries.	Governance, radio/CAD interoperability, reimbursement, and reciprocal expectations.
Community responder/AED programs	Shorten time to CPR and defibrillation.	Alerting, training, quality oversight, privacy, and responder safety.
Alternative response pathways	Protect ambulances from predictable low-acuity demand.	Clinical eligibility, liability, reimbursement, patient consent, and access to alternatives.
Station or unit expansion	Directly improve coverage and reliability.	Recurring staffing cost, capital cost, workforce availability, and tax support.
Hospital/health-system integration	Improve destination, handoff, outcome feedback, and community care.	Data-sharing agreements, governance, and sustainable financing.

7.7 Principles for setting a rural local standard

A rural standard should be ambitious enough to identify preventable delay but realistic enough to guide investment rather than produce permanent technical noncompliance. The target should be based on validated local distributions, medically defined priorities, reliable first-response capability, transport-unit availability, and explicit public funding choices.

- Separate the first clinically capable responder from the transport ambulance.
- Measure the 90th-percentile tail and second-call performance, not only the typical first call.
- Set geographic expectations transparently and identify mitigation for zones with longer unavoidable travel.
- Revisit the standard when staffing, hospital access, call volume, station configuration, or mutual-aid capacity changes.

A local standard should function as a management and budgeting tool. If the desired service level cannot be met with existing resources, the governing authority should either fund the required capability, adopt a phased improvement plan, or publicly revise the expectation after considering the consequences.

8. A Modern EMS Performance Framework

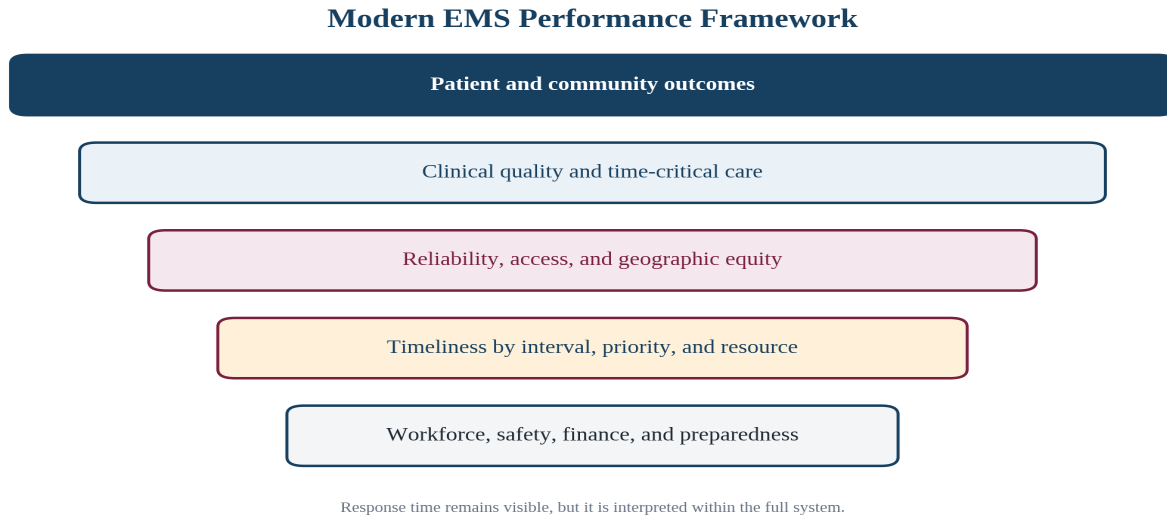


Figure 3. Response time is one layer of EMS performance, not the entire structure.

The appropriate response to the limitations of the eight-minute benchmark is not to stop measuring time. It is to build a balanced framework in which timeliness is connected to reliability, clinical care, safety, equity, workforce, finance, preparedness, and patient outcomes.

8.1 Timeliness measures

- Call-answer and call-processing intervals.
- Dispatch-to-en-route turnout interval.
- En-route-to-scene travel interval.
- Call-receipt-to-first-qualified-responder arrival.
- Call-receipt-to-BLS arrival.
- Call-receipt-to-ALS arrival.
- Call-receipt-to-transport-capable ambulance arrival.
- Arrival-to-patient-contact access interval.
- Scene interval, transport interval, and hospital handoff interval.
- Median, 90th percentile, percentage meeting standard, and call count for each category.

8.2 Reliability and capacity measures

- Percentage of time each planned unit is staffed and available.
- Time with no transport-capable unit available within the system or zone.
- Simultaneous-call frequency and performance of second/subsequent calls.
- Mutual-aid requests, responses, denials, and net aid balance.
- Calls held or stacked, with delay distribution.
- Unit-hour utilization and workload by unit and time period.
- Interfacility-transfer commitment and its effect on 911 readiness.
- Canceled responses and reasons.
- Distance traveled and out-of-area coverage.
- Disaster surge and continuity-of-operations capability.

8.3 Clinical quality measures

Clinical domain	Illustrative measures
Cardiac arrest	Recognition, telecommunicator CPR, bystander CPR, AED application, time to first defibrillation, CPR quality where available, ROSC, survival to discharge, neurological status where obtainable.
Stroke	Validated stroke assessment, last-known-well documentation, glucose assessment, prenotification, destination compliance, and hospital outcome/treatment data.

Clinical domain	Illustrative measures
STEMI/acute coronary syndrome	12-lead acquisition and interpretation, transmission/notification, aspirin when indicated, destination, and treatment linkage.
Trauma	Field triage, hemorrhage control, airway/ventilation, scene interval, trauma-center destination, and outcome linkage.
Respiratory/airway	Oxygenation and ventilation assessment, capnography where indicated, airway first-pass success, peri-intubation safety, and reassessment.
Medication and pain	Indication, dosing, contraindication review, reassessment, adverse events, and documentation.
Pediatrics and special populations	Age/weight-appropriate assessment, equipment readiness, destination, medication accuracy, and pediatric QI review.

8.4 Safety measures

- Lights-and-siren use during response and transport by dispatch priority and patient acuity.
- Vehicle collisions, preventable collisions, near misses, and intersection events.
- Responder injuries, exposures, assaults, and fatigue-related events.
- Seat-belt use and patient-restraint compliance.
- Medication errors, airway complications, equipment failures, and documentation-related risk.
- Safety-culture reporting and completion of corrective actions.

8.5 Workforce measures

- Vacancy rate, turnover, time to fill positions, and reliance on overtime or mandatory callbacks.
- Volunteer/on-call roster depth and percentage of alerts producing a complete crew.
- Training completion, credentialing, skills verification, and remediation loop closure.
- Fatigue indicators, consecutive hours, missed shifts, and injury/illness absence.
- Employee engagement, psychological support utilization, and leadership continuity.
- Percentage of clinicians practicing at the intended level and response mix by BLS/ALS capability.

8.6 Financial and sustainability measures

- Total system cost and cost by major function.
- Readiness cost separated from marginal response and transport cost.
- Cost per staffed unit hour, response, patient contact, and transport.
- Payer mix, gross charges, net collections, write-offs, and collection lag.
- Tax, subsidy, grant, donation, and health-system support.
- Capital replacement schedules and funded depreciation.
- Mutual-aid and interfacility-transfer financial impacts.
- Cost of alternative service models compared with ambulance utilization avoided or capacity protected.

8.7 Equity and access measures

Report core measures by geographic zone, incorporated city/unincorporated area, priority, time of day, and resource type. Where lawful, statistically valid, and privacy-protective, examine access and outcomes for age groups, disability-related needs, language access, and other populations identified through community health and emergency-planning data. Small numbers should be suppressed or combined to protect confidentiality.

8.8 Patient and partner experience

- Patient or family experience, including communication, respect, pain relief, and understanding of disposition.
- Hospital and medical-director feedback on clinical quality, handoff, documentation, and destination decisions.
- Complaint themes, commendations, response to complaints, and corrective-action closure.
- Public understanding of 911, EMS levels, billing, and alternative care pathways.
- Partner satisfaction with dispatch, interoperability, mutual aid, and incident coordination.

8.9 Recommended dashboard architecture

Domain	Core content	Suggested cadence
Access	Call processing; first responder, BLS, ALS, and ambulance patient-response intervals.	Monthly internal; quarterly public.

Domain	Core content	Suggested cadence
Reliability	90th percentile, compliance rate, unit availability, stacked calls, mutual aid, zero-unit time.	Monthly internal; quarterly public.
Clinical	Cardiac arrest, stroke, STEMI, trauma, airway, medication, pediatric measures.	Monthly/quarterly CQI; annual public summary.
Safety	Lights and siren, crashes, near misses, injuries, adverse events.	Monthly internal; quarterly/annual public.
Workforce	Staffing fill, vacancies, turnover, overtime, roster depth, training.	Monthly or quarterly.
Finance	Readiness cost, response cost, collections, subsidy, capital reserve.	Quarterly/annual.
Equity	Core performance by zone and priority; disparity flags.	Quarterly/annual.
Experience	Patient/partner feedback, complaints, commendations.	Quarterly/annual.
Preparedness	COOP, exercises, surge capability, resource inventory.	Annual and after major events.

8.10 Interpreting a balanced dashboard

No single dashboard cell should be interpreted alone. A shorter response interval accompanied by broader lights-and-siren use, more crashes, higher overtime, or deteriorating second-call coverage may represent an unstable improvement. Likewise, a modest increase in ambulance arrival time may be acceptable if an AED-capable responder arrives earlier, dispatch accuracy improves, and transport reliability is protected.

- Use trend charts and rolling periods to distinguish normal variation from sustained change.
- Review outcome and process measures together; a process failure may precede an observable outcome change.
- Require a narrative explanation when a metric changes materially or when a geographic disparity persists.
- Assign each measure an owner who has authority to investigate and implement improvement.

The dashboard is therefore a governance instrument, not merely a report card. Its purpose is to support timely decisions, expose tradeoffs, and document whether corrective actions actually resolve the underlying problem.

9. Governance, Contracts, and Public Accountability

A response-time standard is a public promise backed by staffing, stations, vehicles, dispatch, mutual aid, clinical oversight, and money. It should not be selected merely because another community uses the same number. The county should understand the cost and service consequences before converting a benchmark into a contractual guarantee.

9.1 Governance responsibility

Iowa Standard 3.01 calls for a stakeholder group representing development, funding, oversight, and operation of the EMS system. Standard 3.03 calls for annual assessment. A countywide performance framework should therefore be jointly governed but have clear decision rights.

Party	Primary role
County or governing authority	Adopt public expectations, funding, reporting, accountability, and service-area policy.
EMS advisory/stakeholder group	Review data, recommend standards, identify system gaps, coordinate agencies, and conduct annual assessment.
Medical director(s)	Approve clinical priorities, EMD/response alignment, clinical metrics, safety tradeoffs, and CQI interpretation.
PSAP/911 authority	Define call processing, EMD priority, timestamp integrity, dispatch accuracy, and communications metrics.
Service agencies	Maintain staffing and operational data, participate in CQI, explain variance, and implement corrective action.
Hospitals/health systems	Support outcome feedback, destination protocols, handoff improvement, and integration.
Emergency management/public health	Integrate preparedness, continuity, vulnerable-population planning, and community risk data.
Public/elected officials	Set acceptable service and funding tradeoffs through transparent public process.

9.2 Essential contract definitions

A contract that says only 'eight-minute response time' is not operationally sufficient. At minimum, the following elements should be specified.

- Clock start and stop, including whether the measure is call receipt, dispatch completion, unit notification, en-route, scene arrival, or patient contact.
- Resource measured: first qualified responder, BLS, ALS, or transport-capable ambulance.
- Dispatch priority and eligible incident types.
- Geographic unit of compliance: systemwide, zone, municipality, station area, or demand zone.
- Compliance statistic: median, percentile/fractile, and percentage meeting the objective.
- Reporting period and minimum case count.
- Treatment of simultaneous calls, mutual aid, unit moves, interfacility transfers, canceled calls, standbys, and special events.
- Exclusions and independent review process.
- Authoritative data system and audit rights.
- Data-quality rules for missing, duplicate, or manually corrected timestamps.
- Corrective-action steps, cure period, remedies, and escalation.
- Medical-direction authority over priority and lights-and-siren policy.
- Annual recalibration process tied to demand, outcomes, resources, and cost.

9.3 Avoid unsafe incentives

Financial penalties tied only to arrival time can encourage risky or clinically inappropriate behavior. The contract should prohibit manipulation of dispatch priority, premature status changes, undocumented exclusions, unsafe driving, or the dispatch of an unsuitable resource merely to stop the clock. Safety and clinical appropriateness should be co-equal performance obligations.

9.4 Public reporting

Public dashboards should be understandable without oversimplifying. A recommended public report shows call volume, median and 90th-percentile intervals, compliance with local objectives, performance by zone, mutual-aid and

simultaneous-call indicators, selected clinical outcomes, safety events, staffing reliability, and cost. Technical definitions should be published in an appendix.

Small-number clinical data should be protected. Patient-identifying information and confidential peer-review material should not be released. Aggregate operational performance, however, can generally be reported in a manner that supports transparency and public trust.

9.5 Corrective action should be graduated and diagnostic

1. Validate data and definitions before attributing failure.
2. Determine whether the variance is dispatch, staffing, turnout, travel, access, capacity, or documentation.
3. Examine priority, geography, time of day, and simultaneous demand.
4. Identify whether the standard itself is clinically and financially appropriate.
5. Implement a time-limited corrective plan with assigned responsibility.
6. Reassess results and document loop closure.
7. Escalate persistent failure to operational changes, resource additions, contract remedies, or service redesign.

9.6 Adoption, monitoring, and independent review

The final standard should be adopted through the instrument that matches the county's authority and service model, such as policy, ordinance, intergovernmental agreement, service contract, or a coordinated set of agency policies. The instrument should identify who may interpret definitions, approve exclusions, amend priorities, and certify reports.

Performance should be reviewed by a multidisciplinary body that includes operations, medical direction, dispatch, data expertise, and public governance. Providers should be able to explain anomalies and correct data, but no single provider should have unilateral control over the official compliance calculation.

Periodic independent validation is appropriate when the standard affects substantial public funding, contract payments, penalties, or service-area decisions. Validation may include timestamp audits, incident sampling, reconciliation of CAD and ePCR records, and review of the exclusion process.

10. Recommended County Implementation Roadmap

The following roadmap translates the 2026 Iowa standards into a practical countywide process. It is designed to avoid choosing a politically attractive number before understanding the current system.

Phase	Work	Deliverable
Phase 1 - Governance and definitions	Confirm service area, stakeholder body, medical oversight, PSAP participation, decision authority, data custodian, and definitions for all intervals and resources.	Adopted data dictionary and governance charter.
Phase 2 - Baseline data validation	Audit CAD/ePCR timestamps, priorities, unit identifiers, geocoding, mutual-aid coding, and patient-contact fields. Correct known defects.	Validated 12-24 month baseline.
Phase 3 - System segmentation	Define response zones/demand zones; classify priority, resource, staffing model, time period, and simultaneous-call status.	Performance profile by meaningful strata.
Phase 4 - Clinical and operational analysis	Relate intervals to first intervention, outcomes where available, unit availability, safety, and staffing.	Problem statement and opportunity analysis.
Phase 5 - Options and cost	Model service levels, station/unit changes, tiered response, mutual aid, dispatch improvements, alternative pathways, and associated readiness cost.	Comparable service/cost scenarios.
Phase 6 - Local standard adoption	Select objectives for initial responder, BLS, ALS, and ambulance; set reliability thresholds; define exclusions and reporting.	Policy, ordinance, agreement, or contract.
Phase 7 - Dashboard and CQI	Publish monthly internal and quarterly/annual public reports; review exceptions and corrective action.	Operating performance-management system.
Phase 8 - Annual reassessment	Review demand, outcomes, cost, workforce, public needs, and whether standards remain appropriate.	Annual system assessment and revisions.

10.1 Baseline period

Use at least 12 months of validated data so seasonal and weekday/weekend differences are visible. Twenty-four months is preferable when call volume is low or when recent changes make a single year atypical. Major service changes, CAD replacements, pandemic-era patterns, or hospital changes should be documented.

10.2 Establish priorities before times

The medical director and PSAP should confirm which call categories are potentially time-critical and what response mode is appropriate. A county should not set the same objective for cardiac arrest, breathing difficulty, minor injury, scheduled transfer, public assist, and non-injury lift assist. Priority definitions should be medically governed, auditable, and subject to EMD CQI.

10.3 Select the compliance statistic

The 90th percentile is a defensible conventional reliability measure, but the county should also view the entire distribution. A target can be framed as a time objective met in at least a specified percentage of calls, with performance separately reported by zone and resource. The final percentage should reflect desired reliability, case volume, geography, and cost.

10.4 Model funding consequences

Before adoption, estimate the staffing, station, fleet, dispatch, training, and administrative resources needed to meet each proposed target. Present elected officials with scenarios. For example: current-resource performance; dispatch/process improvement; one added peak-demand unit; full-time staffing of an on-call function; additional station or satellite post; tiered first response; and combined alternatives.

The analysis should show both expected median improvement and expected 90th-percentile/reliability improvement. Adding resources may improve one zone while creating recruitment or fiscal stress elsewhere. The objective is a resilient system, not an isolated metric.

10.5 Recommended review cadence

- Daily or weekly operational exception review for extreme delays, uncovered calls, and safety events.
- Monthly internal performance dashboard and CQI review.
- Quarterly stakeholder review with geographic and priority stratification.
- Annual public system assessment, financial review, and standard validation.

- Immediate after-action review after disasters, mass-casualty incidents, major system failures, or sentinel clinical events.

10.6 Implementation risks and controls

- Data definitions drift. Control: maintain a version-controlled data dictionary and document every change.
- A small number of calls create unstable percentages. Control: publish denominators, use rolling periods, and flag small samples.
- Targets create unsafe incentives. Control: pair timeliness with medical-priority and safety measures.
- Systemwide results hide weak zones. Control: require geographic and second-call reporting.
- Aspirational targets are adopted without resources. Control: attach cost and staffing scenarios to the adoption decision.
- Corrective actions are announced but not verified. Control: assign owners, deadlines, and loop-closure evidence.

10.7 Preserve the decision record

The adopting body should preserve the baseline data, methodology, medical assumptions, cost scenarios, public input, selected targets, rejected alternatives, and reasons for the final decision. That record allows future boards and EMS leaders to determine whether changed performance reflects operations, funding, demand, or a change in the standard itself.

11. Conclusions for Iowa Policymakers

The July 2026 Iowa EMS System Standards provide a clear direction without prescribing a single number. Local systems must define appropriate response expectations for different responder levels, establish reliability standards, evaluate dispatch and cost, connect performance to outcomes, and report to stakeholders.

The eight-minute benchmark has a legitimate history. Its scientific ancestor was a 1979 cardiac-arrest study; its operational identity was strengthened through fire-service deployment standards such as NFPA 1710. In 2026, NFPA 1750 consolidates the relevant fire-service documents and retains legacy deployment concepts. But the benchmark was never a federal all-ambulance mandate, and later evidence does not support using it as the universal dividing line for all EMS quality.

National thinking has changed in emphasis. Timeliness remains essential, but modern EMS is judged by whether the right resource reaches the right patient, provides the right intervention, safely and reliably, and connects the patient to the right destination or care pathway. That requires clinical, operational, financial, workforce, safety, equity, preparedness, and experience measures.

Bottom line for a county board or EMS advisory council

Do not ask only, 'Did the ambulance arrive in eight minutes?' Ask: 'Was the call recognized and prioritized correctly; did the appropriate first responder, BLS, ALS, and transport resource arrive within our locally adopted expectations; was that performance reliable across the county; did the patient receive timely evidence-based care; and can the community sustain the system required to deliver it?'

11.1 Recommended formal findings

1. There is no numerical statewide ambulance response-time threshold in the July 2026 Iowa EMS System Standards.
2. The standards require locally defined response-time objectives for initial responders, BLS, ALS, and transport-capable ambulances.
3. The standards separately require local response-reliability expectations and identification of agencies or geographic areas below standard.
4. Iowa Administrative Code requires service-level CQI review of 911 response and scene times and measurable outcomes.
5. The eight-minute benchmark is historically rooted in cardiac-arrest research and fire-service deployment standards, not a universal federal ambulance law.
6. Current national practice favors a balanced, patient-centered performance system while retaining time measures for access, reliability, and time-critical care.
7. Any locally adopted time requirement should be supported by clear definitions, validated data, medical oversight, cost analysis, geographic reporting, safety protections, and annual review.

Appendix A. Model Local Response-Time and Reliability Policy

The following model is intended as a policy-development template. Bracketed elements require local decision and legal review. Numerical targets are intentionally omitted because the 2026 Iowa standards place that determination with the local system.

A.1 Purpose

The [County/System] establishes measurable, clinically appropriate, geographically transparent, and financially sustainable standards for access to emergency medical services. Response-time measures shall be used with clinical, reliability, safety, workforce, equity, and financial measures and shall not be treated as the sole definition of EMS quality.

A.2 Scope

This policy applies to 911 EMS incidents within [defined service area] and to participating PSAPs, initial-response agencies, BLS services, ALS services, transport-capable ambulance services, and mutual-aid resources when functioning as part of the planned system.

A.3 Definitions

Term	Model definition
Call receipt	The timestamp at which the PSAP first receives the emergency request.
Dispatch complete	The timestamp at which notification of the designated response assignment is completed.
En route	The timestamp at which the assigned unit begins movement toward the incident.
On scene	The timestamp at which the unit arrives at the incident location or designated staging location.
Patient contact	The timestamp at which a responder capable of assessment or care reaches the patient.
Initial responder	The first locally credentialed resource designated to provide immediate emergency care.
BLS arrival	Patient contact by a BLS-capable resource meeting local staffing and equipment requirements.
ALS arrival	Patient contact by an ALS-capable resource meeting local staffing and equipment requirements.
Transport ambulance arrival	Arrival or patient contact by a transport-capable ambulance as locally defined.
Response reliability	The degree to which the system consistently meets the adopted objective across included incidents, zones, priorities, and time periods.

A.4 Priority categories

The medical director and PSAP shall maintain medically directed EMD priority categories that identify life-threatening/time-critical, urgent, and non-time-critical events. Each category shall specify the intended response assignment and response mode. Priority coding shall be audited for compliance and clinical appropriateness.

A.5 Response objectives

The governing authority shall adopt separate objectives for: (1) initial responder patient contact; (2) BLS patient contact; (3) ALS patient contact; and (4) transport-capable ambulance arrival or patient contact. Objectives may vary by medically justified priority and defined geographic or demand zone.

Each objective shall state the time interval, start and stop events, included incidents, required compliance percentage or percentile, reporting period, and minimum case count. Median and 90th-percentile performance shall be reported even when another compliance statistic is adopted.

A.6 Reliability standards

The system shall define minimum reliability for each zone and resource category. Reliability reporting shall include unit availability, zero-unit time, stacked calls, mutual-aid use, second-call performance, and percentage meeting the response objective. Performance shall not be reported only as a systemwide average.

A.7 Exclusions

Exclusions shall be limited to predefined circumstances, retained in the dataset, coded by reason, and reviewed through CQI. Routine unit unavailability, simultaneous demand, or mutual-aid dependence shall not be excluded when those conditions represent normal system performance.

A.8 Data and audit

CAD is the primary operational data source. ePCR, hospital, staffing, and financial systems shall be linked where feasible. The data dictionary shall define timestamp hierarchy, missing-data treatment, manual correction, geocoding, priority changes, unit identity, and patient-contact validation. The governing authority shall retain audit rights.

A.9 Safety and clinical appropriateness

No person or agency shall be encouraged to use an unsafe response mode, misclassify a call, dispatch an inappropriate resource, or manipulate a timestamp to achieve compliance. Medical direction governs clinical priority and lights-and-siren criteria. Safety measures shall be reviewed with response-time performance.

A.10 Reporting and improvement

Internal performance shall be reviewed at least monthly. Public performance shall be reported at least quarterly, with an annual comprehensive system assessment. Agencies or zones below standard shall receive a documented root-cause review, corrective-action plan, responsible party, completion date, and loop-closure review.

A.11 Annual validation

At least annually, the stakeholder group shall evaluate whether the standards remain appropriate in light of call demand, clinical outcomes, staffing, geography, hospital access, mutual aid, safety, public expectations, and total readiness and response cost. Recommended revisions shall be submitted to the governing authority through a public process.

Appendix B. Recommended EMS Performance Dashboard

Metric	Operational definition	Stratification	Display
Call volume	Count of included 911 EMS incidents.	Priority, zone, hour, weekday/weekend, agency.	Monthly/quarterly.
Call processing	Call receipt to dispatch completion.	Priority, PSAP, call type.	Median, P90, compliance.
Turnout	Notification to en route.	Agency, unit, staffed/on-call, hour.	Median, P90, compliance.
Initial responder	Call receipt to patient contact by first qualified responder.	Priority, zone, responder type.	Median, P90, compliance.
BLS arrival	Call receipt to BLS patient contact.	Priority, zone, agency.	Median, P90, compliance.
ALS arrival	Call receipt to ALS patient contact.	Priority, zone, agency.	Median, P90, compliance.
Transport ambulance	Call receipt to transport unit arrival or patient contact.	Priority, zone, BLS/ALS.	Median, P90, compliance.
Access delay	On scene to patient contact.	Location type, staging, scene safety.	Median, P90, outliers.
Unit availability	Planned staffed unit hours and available unit hours.	Unit, zone, time period.	Percent availability.
Zero-unit condition	Time with no transport ambulance available.	System and zone.	Minutes/hours and events.
Simultaneous calls	Incidents received while another unit is committed.	Second/third call, zone.	Count, P90, compliance.
Mutual aid	Requests, responses, denials, and net balance.	Agency/neighbor, reason.	Counts and intervals.
Hospital handoff	Destination arrival to transfer/available.	Facility, time, patient category.	Median, P90.
Cardiac arrest	Core process and outcome measures.	Witnessed status, initial rhythm, zone.	Utstein-style reporting.
Stroke	Assessment, prenotification, destination, outcome linkage.	Zone, destination, time window.	Compliance and treatment linkage.
STEMI	12-lead, notification, destination, outcome linkage.	Zone, destination.	Compliance and treatment linkage.
Trauma	Triage, hemorrhage control, scene interval, destination.	Mechanism, severity, zone.	Compliance/outcomes.
Lights and siren	Emergency response/transport use.	Priority, acuity, agency.	Percent and trend.
Safety events	Crashes, near misses, injuries, exposures.	Event type and severity.	Counts, rates, closure.
Workforce	Vacancies, turnover, overtime, roster depth, training.	Agency, certification level.	Counts, rates, trend.
Finance	Readiness, response, transport, collection, subsidy, capital.	Agency/system, service line.	Quarterly/annual.
Equity	Core measures compared across geography/populations.	Zone/municipality; approved aggregate groups.	Disparity ratios and trend.
Experience	Patient/partner feedback and complaints.	Theme, agency, disposition.	Scores, counts, closure.

Source note: The dashboard should be adapted to local call volume, data quality, medical priorities, privacy requirements, and the current NEMSQA measure set.

B.1 Dashboard interpretation rules

- Always display the denominator and missing-data rate.
- Do not compare agencies until clock definitions and case inclusion are standardized.
- Flag statistically unstable small samples.
- Show trends and control limits where possible rather than reacting to a single month.
- Pair a time measure with the responsible process and a balancing safety measure.
- Report raw and adjusted performance when exclusions are used.
- Document any change in CAD, ePCR, priority coding, station configuration, or service boundary.
- Use outcome data for learning, not simplistic punishment; risk and case mix matter.
- Require narrative explanation for persistent geographic or priority disparities.
- Link corrective action to a later verification of improvement.

Appendix C. Contract and Ordinance Specification Checklist

Element	Required specificity
Authority and scope	Governing authority, service area, participating agencies, effective date, controlling law/standard edition.
Definitions	Call receipt, dispatch, turnout, travel, arrival, patient contact, transfer of care, available, priority, resource levels.
Service obligation	Hours, staffing, unit types, station/posting, backup, mutual aid, interfacility obligations.
Priority and response mode	Medical direction, EMD protocol, lights-and-siren criteria, priority upgrades/downgrades.
Time objectives	Separate initial responder, BLS, ALS, and transport ambulance objectives by priority/zone.
Reliability	Compliance percentile, zone-level minimums, unit availability, simultaneous-call and zero-unit measures.
Data	System of record, timestamp hierarchy, CAD/ePCR integration, geocoding, data retention, audit access.
Inclusions/exclusions	Eligible calls, predefined exclusions, review, raw/adjusted reporting.
Reporting	Monthly, quarterly, annual; public versus confidential CQI; denominator and missing-data standards.
Clinical quality	Required protocols, medical director role, NEMSQA or locally selected measures, outcome feedback.
Safety	Emergency driving, crashes, near misses, fatigue, vehicle/equipment maintenance, adverse-event reporting.
Workforce	Minimum staffing, certification, credentialing, vacancies, training, wellness, succession.
Finance	Readiness payment, transport revenue, subsidy, capital, inflation, extraordinary events, data reporting.
Corrective action	Notice, root-cause analysis, plan, cure period, loop closure, escalation.
Remedies	Performance improvement, liquidated damages where lawful, withholding, termination, emergency transition.
Annual review	Demand, geography, outcomes, cost, standard appropriateness, public process.
Continuity	Disaster operations, COOP, surge, mutual aid, transition at contract end.

C.1 Questions elected officials should ask

- What exact clock does the proposed number measure?
- Which resource stops the clock?
- Is the target for every call, only high-priority calls, or a medically defined subset?
- What percentile must be met, and in each geographic area or only countywide?
- What is current validated performance using the same definition?
- What staffing and capital are required to achieve the proposed level?
- What happens during simultaneous calls and interfacility transports?
- How often is mutual aid required, and is it dependable?
- Does the proposal reward unnecessary lights-and-siren use?
- Which clinical and patient-outcome measures accompany the time target?
- How will rural areas and small communities be represented in public reporting?
- What is the readiness cost, who pays it, and how is it adjusted over time?
- How will data be audited and manipulation prevented?
- What corrective action occurs when performance falls below standard?
- When and how will the standard be reconsidered?

Appendix D. Glossary

Term	Definition
ALS	Advanced life support; care provided at an advanced certification level within state and local authorization.
BLS	Basic life support; foundational emergency assessment and care provided within the BLS scope.
CAD	Computer-aided dispatch; the operational system that records call, dispatch, unit, and incident timestamps.
CQI	Continuous quality improvement; a structured, recurring process to measure performance, identify causes, implement improvement, and verify loop closure.
EMD	Emergency medical dispatch; medically directed call prioritization and pre-arrival instruction process.
Fractile	A percentile-based compliance measure. A 90th-percentile objective is met when 90 percent of included observations are at or below the target.
Initial responder	The first qualified resource assigned to begin immediate emergency assessment or care.
Median	The 50th percentile; half of observations are faster and half are slower.
NEMSIS	National Emergency Medical Services Information System; the national data standard and repository framework for EMS incident data.
NEMSQA	National EMS Quality Alliance; an organization that develops and supports EMS quality measures.
NFPA	National Fire Protection Association; developer of voluntary consensus standards, including fire-service organization and deployment standards.
Patient-contact time	The time at which a responder reaches the patient and can begin assessment or care.
PSAP	Public safety answering point; the communications center that receives and processes 911 calls.
Readiness cost	The cost of maintaining the capability to respond before a call occurs, including staffing, stations, vehicles, communications, medical direction, training, and administration.
Response reliability	Consistency with which the system provides the promised resource and interval across calls, geography, and time.
Response time	An ambiguous phrase unless the start event, stop event, resource, priority, geography, and statistical method are defined.
ROSC	Return of spontaneous circulation following cardiac arrest.
Time-critical condition	A condition for which delay to a specific effective intervention is expected to worsen outcome.
Turnout time	Time from unit notification to en-route status.
Travel time	Time from en-route status to arrival at the incident location.

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Document notes

Sources were selected to distinguish primary research, current Iowa guidance, current Iowa administrative rule, federal EMS policy, quality-measure development, and NFPA deployment standards. NFPA standards are copyrighted consensus documents; users should consult the licensed current edition for exact operative language and section numbering. Local adoption should be reviewed by legal counsel and the responsible medical director.